

generating the a vapor bubble in the first volume during heating and expanding of the first volume.

**REMARKS**

This Amendment is responsive to the Office Action mailed December 20, 2001. A request for an extension of time for a period of one month accompanies this Amendment.

The Applicant acknowledges the Examiner's Requirements for Restriction. Pursuant to those requirements, claims 1 to 15 are pending in this prosecution.

Applicant acknowledges the objections to the drawings. The drawings will be supplied upon allowance of this application.

Applicant will forward the articles missing from the information disclosure statement.

**Claim Objections**

Claims 1 to 15 have been rejected under 35 USC 112, second paragraph, as being indefinite. Serially addressing the objections of the Examiner, Applicant has amended these claims as follows:

Regarding claim 1, the phrase "substantially" has been removed.

Regarding the objections to claims 2 to 15, the indefinite article "A" has been removed from claims 2 through 7, 9 through 13, and 15 and replaced with the definite article "The."

In claim 3, the language referring to "desired target" has been removed.

In claim 3, the word "selectively" has been removed at its first occurrence.

In claim 4, the wording "includes: forming" has been removed and the word -- forms -- substituted therefor. Similarly, the term "targeted portion of the" has been removed from the claim.

In claim 5, the term "prepared" has been removed. Further, the objected to term "components" has been substituted with the term -- part --.

In claim 7, the term in parentheses has been removed.

In claim 8, the term "substantially" has been removed. Further, the term "removing" has now been changed to -- ceasing --.

In claim 9, the term "the allowing" has been substituted with the words -- contracting --. Further, the objected to phrase "a remainder of the specimen" has been removed.

In claim 10, the objected to language of "allowing" has been removed. Further, the objected to language "a remainder of the specimen" has been removed.

In claim 11, the objected to language "includes" stands removed.

In claim 12, the claim has been rewritten to recite a positive step.

In claim 13, the claim has been rewritten to recite a process step.

In claim 15, the objected to term "includes" has been removed.

Finally, in claim 15, the claim has been rewritten to make clear that the vapor bubble is in the first volume.

### **Action on the Merits**

Claims 1 to 15 have been rejected under 35 USC 102(e) in accordance with the practice prior to the American Inventors Protection Act. Applicant submits that the cited Goldstein et al. U.S. Patent 6,100,051 has nothing to do with the invention claimed herein.

In Goldstein et al., a surface having a convex geometry is contacted with the specimen. After contact has occurred, (laser) activation occurs.

In the claims at issue here, there is always maintained a spatial interval between the specimen on one hand and the activatable layer on the other hand. When activation occurs, the activated portion of the layer "expands out", bridges the interval between the specimen and the layer, and fasteners onto a portion of the specimen. Since Goldstein et al. does not suggest these expedients, is respectively requested Goldstein be withdrawn as a reference.

There is an operating reason for the so-called "noncontact laser microdissection" claimed and set forth in this invention. Specifically, when contact is made and before activation occurs, it has been found that undesired materials come in contact with and adhered to the activatable layer. With the so-called "noncontact laser capture microdissection" the only contact that occurs with the specimen is the intentionally activated portion of the layer. This prevents so-called "nonspecific transfer." When it is remembered that the very small samples collected by this technique are subject to amplification (PCR), the amplification of nonspecifically transferred and undesired portions of the specimen is highly detrimental to the precise dissection desired.

### **Conflicting Applications**

The Examiner's attention is directed to United States Patent Application Serial Number 09/495,401 entitled Precision Laser Capture Microdissection Utilizing Short Pulse Length, now allowed. Additionally, there has been filed a Continuation in this patent application containing broader claims than those presently allowed.

Further, in the first reference patent application, Baer et al. United States Patent 5,985,085 has been cited which discloses, but does not claim, the invention prosecuted herein. In the '401 application, applicant has successfully sworn behind the Baer et al. reference.

Double patenting issues are raised by both the allowed application and the Continuation application referred to above. Applicant does not address these issues at this time. Complying with his duty of candor to the United States Patent Office, Applicant does call the Examiner's attention to the issues raised.

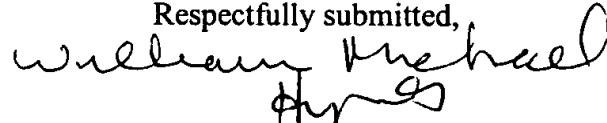
In the interim, Applicant is attempting to reach a resolution of these issues. Accordingly, a telephone conference with the applicant's attorney had the below listed telephone number is requested at the time this application is examined.

CONCLUSION

In view of the foregoing, Applicants awaits an Action citing Baer et al.  
United States Patent 5,985,085 and the copending Applications.

If the Examiner believes a telephone conference would expedite  
prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

1. (Once Amended) A process of laser capture microdissection from a specimen having the steps of:

providing a selectively activatable layer which upon activation causes volumetric expansion with an extremity of the volumetric expansion exceeding a first interval taken [substantially] normal to a surface of the selectively activatable layer;

placing the selectively activatable layer overlying the specimen at a finite separation less than the first interval; and,

selectively activating the selectively activatable layer to cause volumetric expansion at least to the first interval to locally contact a portion of the specimen at the extremity of the volumetric expansion.

2. [A](Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

providing a supporting substrate; and,

adhering the selectively activatable layer to the supporting substrate.

3. [A](Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

visualizing the specimen; and,

[selectively] activating the selectively activatable layer overlying the [desired target within the] visualized portion of the specimen.

4. [A](Once Amended) The process of laser capture microdissection from a specimen according to claim 1 where the selectively activating step forms [includes:

forming] a mechanical bond with the [targeted portion of the] specimen.

5. ~~[A]~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

placing a ~~{prepared}~~ surface on the selectively activatable layer exposed to the specimen~~, the prepared surface~~ having an affinity specific bond with at least one ~~{component}~~ part of the specimen; and,

~~{selectively}~~ activating the selectively activatable layer to cause the ~~{prepared}~~ surface to contact the specimen and form affinity specific bonds with ~~{these components}~~ ~~the portion of the [targeted]~~ specimen having the specific surface affinity defined by the ~~{prepared}~~ surface on the activatable layer.

6. ~~[A]~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

repeating the selectively activating of different portions of the selectively activatable layer to cause corresponding contact and capture of ~~different targeted~~ elements within the specimen.

7. ~~[A]~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 6 having the steps of:

moving the selectively activatable layer with respect to the specimen to concentrate the series of ~~captured elements~~ on the activatable layer compared to their spacing within the specimen~~{(s)}~~.

~~[8.]~~8. (Once Amended) A process of laser capture microdissection from a specimen having the steps of:

providing a laser activated selectively activatable layer having which upon laser activation causes heat generated volumetric expansion and upon cooling elastically contracts, an extremity of the volumetric expansion exceeding a first interval taken ~~substantially~~ normal to a surface of the selectively activatable layer;

placing the selectively activatable layer overlying the specimen at a separation less than the first interval; and,

selectively activating with laser energy to heat the selectively activatable layer to cause volumetric expansion at least to the first interval to locally contact and bond to a portion of the specimen at the extremity of the volumetric expansion;

~~[removing]~~ ceasing the laser activation; and,  
allowing the volumetric expansion to cool.

9. ~~{A}~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

~~{the allowing}~~ contracting the volumetric expansion to ~~{cool step causes the volumetric expansion to contract separating}~~ separate the targeted portion of the specimen from ~~{a remainder of}~~ the specimen and thereby microdissecting the portion of the specimen from a remainder of the specimen.

10. ~~{A}~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

~~{the allowing}~~ contracting the volumetric expansion ~~{to cool step maintains}~~ by cooling while maintaining attachment to the portion of the specimen ~~{while}~~ to elastically tensioning the volumetric expansion of the activatable layer; and,

withdrawing the activatable layer from the specimen to separate the portion of the ~~{targeted}~~ specimen from the remainder of the specimen thereby microdissecting the portion of the specimen ~~{from a remainder of the specimen}~~.

11. ~~{A}~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 10 where the withdrawing the activatable layer step ~~{includes: }comprises:~~

~~{elastically}~~ contracting the volumetric expansion to withdraw the portion of the specimen bonded to the volumetric expansion within the first interval whereby the portion of the specimen bonded to the volumetric expansion cannot contact underlying

and remaining portions of the specimen when the activatable layer is maintained separate from the specimen by the first interval.

12. ~~{A}~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

~~{the} providing~~ activatable layer ~~{includes}~~ with strong long chain thermoplastic polymers with a large volume change associated with phase transition.

13. ~~{A}~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

attaching the activatable layer ~~{is attached}~~ to a supporting substrate.

15. ~~{A}~~(Once Amended) The process of laser capture microdissection from a specimen according to claim 14 having the steps of:

~~{the }generating the a vapor bubble in the first volume during heating and expanding of the first~~ ~~{inner volume includes generating or expanding a vapor bubble.}~~  
volume.